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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/977,937	10/17/2001	Jim Allen	UTS-103	4020

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EXAMINER
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ROBINSON BOYCE, AKIBA K

ART UNIT	PAPER NUMBER
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3639

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/977,937

Applicant(s)

ALLEN ET AL.

Examiner

Akiba K. Robinson-Boyce

Art Unit

3639

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

CV

## DETAILED ACTION

### *Status of Claims*

1. Due to communications filed 10/17/01, the following is a non-final first office action. Claims 1-20 are pending in this application, and are examined on the merits. Claims 1-20 are rejected as follows.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Klashinsky et al (US 5,617,086)

As per claim 1, Klashinsky et al discloses:

a classification loop array installed on a surface of a traveling path of a vehicle, (col. 4, lines 21-29, sensor arrays embedded in the roadway surface, and comprises inductive loop presence detectors);

wherein the classification loop array generates profile information characterizing the vehicle when the vehicle travels over the classification loop array, (col. 4, lines 52-67, the sensor arrays are connected to a programmable roadside controller comprising a microcomputer that processes signals from sensor arrays and determines the number of axles on vehicle, distance between axles, etc, which is vehicle profile information);  
and

Art Unit: 3639

a microprocessor for receiving the profile information, wherein the microprocessor uses the profile information to assign a predefined classification to the vehicle, (col. 5 lines 2-3, microcomputer determines the vehicle class based upon number of axles and their spacings, etc, [vehicle profile information]).

As per claim 2, Klashinsky et al discloses:

wherein the profile information represents changes of inductance which can be interpreted to identify one or more of all axle count of the vehicle, an axle spacing of the vehicle, a speed of the vehicle, and a chassis height of the vehicle, (Col. 4, line 66-col. 5, line 2, number of axles, distance between axles, etc. are detected by sensor arrays which can be inductive loop presence detectors as described in col. 4, lines 27-29)

As per claim 3, Klashinsky et al discloses:

further comprising a vehicle library accessible to the microprocessor, wherein the vehicle library comprises the predefined classification, Col. 5, line 67-col. 6, line 2, vehicle classifications stored in memory).

As per claim 4, Klashinsky et al discloses:

wherein the predefined classification is associated with a fare, (abstract, lines 16-20, pre-established vehicles profiles for segregation into particular vehicle class-types for toll charge, w/Col. 1, lines 47-50, shows a system that count sh6e number of ales on a vehicle to enable classification and calculation of toll).

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3639

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klashinsky et al (US 5,617,086) as applied to claim1 above, and further in view of Platzman (US 3,705,976).

As per claim 5, Klashinsky et al fails to disclose a payment point in communication with the microprocessor, wherein the payment point is adapted to notify an operator of the vehicle of the fare and to receive the fare from the operator, but does disclose an example where the number of axles on a vehicle are counted to enable classification and calculation of an appropriate tariff or use of a toll road in col. 1, lines 47-50.

However, Platzman discloses:

a payment point in communication with the microprocessor, wherein the payment point is adapted to notify an operator of the vehicle of the fare and to receive the fare from the operator, (Abstract, lines 1-17, ticket encoded at entering terminal, where the terminal represents the payment point, and wherein once the ticket is decoded, a fee is automatically computed and displayed at the exit terminal, also shows that non-revenue and credit card transactions are accommodated). Platzman discloses this limitation in an analogous art for the purpose of disclosing a point where payment transactions can be accommodated.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to have a payment point in communication with the

Art Unit: 3639

microprocessor, wherein the payment point is adapted to notify an operator of the vehicle of the fare and to receive the fare from the operator with the motivation of allowing a vehicle to pass through a point where payments for that vehicle can be determined and processed.

As per claim 6, Klashinsky et al fails to disclose a notification device, wherein the notification device is adapted to notify the operator of the fare, but does disclose an example where the number of axles on a vehicle are counted to enable classification and calculation of an appropriate tariff or use of a toll road in col. 1, lines 47-50.

However, Platzman discloses:

a notification device, wherein the notification device is adapted to notify the operator of the fare, (abstract, lines 13-14, fee is displayed). Platzman discloses this limitation in an analogous art for the purpose of showing that the fare can be displayed after it is automatically computed.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to have a notification device that notifies the operator of the fare with the motivation of informing the operator of the fare that must be paid by a particular vehicle.

As per claim 7, Klashinsky et al fails to disclose further comprising means for receiving the fare from the operator, but does disclose an example where the number of axles on a vehicle are counted to enable classification and calculation of an appropriate tariff or use of a toll road in col. 1, lines 47-50.

However, Platzman discloses:

Art Unit: 3639

further comprising means for receiving the fare from the operator, (col. 6, lines 42-50, charging toll to driver's account). Platzman discloses this limitation in an analogous art for the purpose of showing how non-revenue and credit authorized transactions are processed.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to receive the fare from the operator with the motivation of collecting the toll due for a particular vehicle.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Klashinsky et al (US 5,617,086) as applied to claim 1 above, and further in view of Waldman et al (US 5,764,163).

As per claim 8, Klashinsky et al fails to disclose a predefined classification listing in sequence of vehicles in queue, wherein the microprocessor dispenses the vehicle's queue in sequence to the operator, but does disclose an example where the number of axles on a vehicle are counted to enable classification and calculation of an appropriate tariff or use of a toll road in col. 1, lines 47-50.

However, Waldman et al discloses:

a predefined classification listing in sequence of vehicles in queue, wherein the microprocessor dispenses the vehicle's queue in sequence to the operator, (col. 14, lines 58-59, shows detection of vehicle queues). Waldman et al discloses this limitation in an analogous art for the purpose of allowing a vehicle to be detected in a queue.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to have a predefined classification listing in sequence of vehicles

in queue where the vehicle's queue is dispensed in sequence with the motivation of classifying vehicles in a pre-determined order.

7. Claims 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hilliard et al (US 6,342,845), and further in view of Platzman (US 3,705,976).

As per claim 9, Hilliard et al discloses:

a classification loop array installed on a surface of a toll lane for sensing a vehicle moving through the toll lane, wherein the classification loop array is adapted to indicate changes in electromagnetic field which can be processed to produce initial signature information and wheel assembly information characterizing the vehicle, (Col. 6, lines 25-44, blade-type wire loop used to produce repeatable inductive signatures of a vehicle and cancel most of the incident electromagnetic differential noise to produce a high signal-to-noise ratio [for producing inductive signatures]) ;

a microprocessor for receiving the initial signature information and the wheel assembly information from the classification loop array, wherein the microprocessor uses the initial signature information and the wheel assembly information to assign a predefined classification to the vehicle, (Col. 10, lines 38-44, each wheel produces and identifiable peak and character of the peak is used for distinguishing vehicle, discloses a digital signal processor for processing the signals as they are produced when the vehicle crosses the loop, which is normally in microprocessor form, in col. 8, lines 5-9);

an intelligent queue loop in communication with the microprocessor, wherein the intelligent queue loop is adapted to indicate changes in electromagnetic field which can be processed to produce subsequent signature information and wheel assembly



Art Unit: 3639

information characterizing the vehicle, wherein the subsequent signature information is used to reconfirm the initial signature information to ensure that the vehicle is in a proper sequence, (Col. 15, lines 33-37, shows how amplitude sequence is used for classification, Col. 16, line 56-Col. 17, line 4, re-identification);

Hilliard et al fails to disclose the following, but does disclose a system that classifies a vehicle described by the measured inductive signature as shown in the abstract, lines 3-4.

However, Platzman discloses:

means for associating a fare with the vehicle, (Col. 6, lines 31-37, both the amount of toll and classification of a vehicle printed on a piece of paper); and

further comprising means for receiving the fare from the operator, (col. 6, lines 42-50, charging toll to driver's account). Platzman discloses this limitation in an analogous art for the purpose of showing how non-revenue and credit authorized transactions are processed.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to associate a fare with a vehicle and to receive the fare from the operator with the motivation of collecting the toll due for a particular vehicle after it has been classified.

As per claim 10, Hilliard et al, discloses:

wherein each of the initial signature information and the subsequent signature information represents changes of inductance which can be interpreted to identify one or more of an axle count of the vehicle, and axle spacing of the vehicle, a speed of the

Art Unit: 3639

vehicle, and a chassis height of the vehicle, Col. 3, lines 40-54, shows an example where a highway vehicle sensor system utilizes loops to detect vehicle speed).

As per claim 11, Hilliard et al fails to disclose wherein the means for receiving is located at a payment point along the toll lane, but does disclose a system that classifies a vehicle described by the measured inductive signature as shown in the abstract, lines 3-4.

However, Platzman discloses:

wherein the means for receiving is located at a payment point along the toll lane, (Abstract, lines 1-17, ticket encoded at entering terminal, where the terminal represents the payment point, and wherein once the ticket is decoded, a fee is automatically computed and displayed at the exit terminal, also shows that non-revenue and credit card transactions are accommodated). Platzman discloses this limitation in an analogous art for the purpose of disclosing a point where payment transactions can be accommodated.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to have a payment point in communication with the microprocessor, wherein the payment point is adapted to notify an operator of the vehicle of the fare and to receive the fare from the operator with the motivation of allowing a vehicle to pass through a point where payments for that vehicle can be determined and processed.

As per claim 12, Hilliard et al discloses:

Art Unit: 3639

wherein the classification loop array is located at a first distance from the payment point and the intelligent queue loop is located at a second distance from the payment point, (Col. 7, lines 19-29, secondary loop positioned below the primary loop).

As per claim 13, Hilliard et al discloses:

further comprising means for queuing more than one vehicles in sequence, (Col. 15, lines 33-37, shows how amplitude sequence is used for classification)

As per claim 14, Hilliard et al discloses:

means for generating initial signature information and wheel assembly information characterizing a vehicle that is moving in a toll lane, wherein each of the initial signature information and the wheel assembly information represents changes of inductance, (Col. 6, lines 25-44, blade-type wire loop used to produce repeatable inductive signatures of a vehicle and cancel most of the incident electromagnetic differential noise to produce);

which can be interpreted to identify one or more of an axle count of the vehicle, an axle spacing of the vehicle, a speed of the vehicle, and a chassis height of the vehicle, (Col. 3, lines 40-54, shows an example where a highway vehicle sensor system utilize loops to detect vehicle speed);

means for assigning a predefined classification to the vehicle based at least in part on the initial signature information and the wheel assembly information, (Col. 7, line 59-Col. 8, line 9, comparing the inductive length-signature to other inductive length-signatures through statistical methods in order to classify or identify the vehicle)

Art Unit: 3639

means for queuing more than one vehicles in sequence, Col. 15, lines 33-37, shows how amplitude sequence is used for classification);

Hilliard et al fails to disclose the following, but does disclose a system that classifies a vehicle described by the measured inductive signature as shown in the abstract, lines 3-4.

However, Platzman discloses:

means for determining a fare appropriate for the vehicle, (Col. 6, lines 31-37, both the amount of toll and classification of a vehicle printed on a piece of paper); and

means for receiving the fare, (col. 6, lines 42-50, charging toll to driver's account). Platzman discloses this limitation in an analogous art for the purpose of showing how non-revenue and credit authorized transactions are processed.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to associate a fare with a vehicle and to receive the fare from the operator with the motivation of collecting the toll due for a particular vehicle after it has been classified.

As per claim 15, Hilliard et al discloses:

wherein the generating means comprises at least one wheel assembly loop and at least one signature loop, wherein the wheel assembly loop produces the wheel assembly information and the signature loop produces the initial signature information, (col. 6, lines 50-65, shows loop that detects wheel, but then produces signature information, therefore this loop acts as both).

As per claims 16-19, Hilliard et al discloses:

Art Unit: 3639

wherein the generating means comprises a left wheel assembly loop and a right wheel assembly loop, wherein the left wheel assembly loop and the right wheel assembly loop are aligned to correspond with a left side and a right side of the vehicle, respectively/wherein the generating means comprises a front signature loop, a pair of wheel assembly loops, and a rear signature loop, wherein the pair of wheel assembly loops are located in between the front signature loop and the rear signature loop/wherein the generating means comprises a front wheel assembly loop, a signature loop, and a rear wheel assembly loop, wherein the signature loop is located in between the front wheel assembly loop and the rear wheel assembly loop/ wherein the generating means comprises a bi-symmetrical offset wheel assembly loop characterized by a left member and a right member, wherein the left member and the right member are aligned to correspond with a left side and a right side of the vehicle, respectively, (Col. 18, lines 28-41, shows that peaks are produced by metal associated with each wheel, shows the driver's/passenger's side front/rear wheel).

As per claims 20, Hilliard et al fails to disclose further comprising means for verifying a presence of the vehicle at a payment point along the toll lane but does disclose a system that classifies a vehicle described by the measured inductive signature as shown in the abstract, lines 3-4.

However, Platzman discloses:

means for verifying a presence of the vehicle at a payment point along the toll lane (Col. 5, lines 5-18, at entry lane, vehicle is detected). Platzman discloses this

Art Unit: 3639

limitation in an analogous art for the purpose of showing that the total number of axles is counted as a vehicle passes through the entry lane.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to verify a presence of a vehicle at a payment point along the toll lane with the motivation of identifying a vehicle for which a toll is due.

Art Unit: 3639

**Conclusion**

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Akiba K Robinson-Boyce whose telephone number is 571-272-6734. The examiner can normally be reached on Monday-Tuesday 8:30am-5pm, and Wednesday, 8:30 am-12:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Hayes can be reached on 571-272-6708. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7238 [After final communications, labeled "Box AF"], 703-746-7239 [Official Communications], and 703-746-7150 [Informal/Draft Communications, labeled "PROPOSED" or "DRAFT"].

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.



A. R. B.  
October 12, 2005